What Is Claimed Is:

1. A heat-softening heat-radiation sheet comprising a polyolefin-based heat-conductive composition which comprises a polyolefin and a heat-conductive filler, has a softening point of 40°C or above, has a thermal conductivity of 1.0 W/mK or higher, has a viscosity at 80°C of from 1×10^2 to 1×10^5 Pa·s and has a plasticity at 25°C in the range of from 100 to 700.

2. The heat-softening heat-radiation sheet according to claim 1, wherein said polyolefin is a polyolefin comprising an α-olefin polymer and having a softening point of from 40°C to 120°C.

3. The heat-softening heat-radiation sheet according to claim 1, wherein said polyolefin comprises an α-olefin polymer, an ethylene/α-olefin copolymer and an ethylene/α-olefin/non-conjugated polyene random copolymer.

4. The heat-softening heat-radiation sheet according to claim 1, wherein said polyolefin comprises an α-olefin represented by the general formula (1):

$$CH_2=CH(CH_2)_nCH_3 \qquad (1)$$

wherein n is an integer of 16 to 50.

5. The heat-softening heat-radiation sheet according to claim 3, wherein said ethylene/α-olefin copolymer is represented by the general formula (2):

$$[(CH_2-CH_2)_X-(CH_2-CRH)_Y]_P \qquad (2)$$

wherein R is an alkyl group represented by $-C_nH_{2n+1}$ where n is an positive integer; and X, Y, and P are positive integers;

and having a viscosity at 25°C in the range of from 200 cSt to 1,000,000 cSt.

6. The heat-softening heat-radiation sheet according to claim 3, wherein said ethylene/α-olefin/non-conjugated polyene random copolymer has a Mooney viscosity (JIS K 6395) at 100°C in the range of from 5 to 50.

7. The heat-softening heat-radiation sheet according to claim 2, wherein said α-olefin polymer is derived from two or more α-olefins having a different number of carbon atoms.

8. The heat-softening heat-radiation sheet according to claim 3, wherein said ethylene/α-olefin copolymer is a mixture of two or more ethylene/α-olefin copolymers having different viscosities at 25°C.

9. The heat-softening heat-radiation sheet according to claim 3, wherein said ethylene/α-olefin/non-conjugated polyene random copolymer is a mixture of two or more ethylene/α-olefin/non-conjugated polyene random copolymers having different ethylene contents.

10. The heat-softening heat-radiation sheet according to claim 1, wherein said heat-conductive filler is selected from the group consisting of a metal, an inorganic oxide and an inorganic nitride.